Amendments to the Specification

On page 1, line 1, please replace the title and inventors' names with the following:

ACOUSTICAL SOUND PROOFING MATERIAL AND

METHODS FOR MANUFACTURING SAME

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Please replace the first paragraph of the section "Background of the Invention" on page 1, line 14 which begins with "Noise is emerging as both" with the following amended paragraph:

Noise is emerging as both an economic and public policy issue. Soundproof rooms are required for a variety of purposes. For example, apartments, hotels and schools all require rooms with walls, ceilings and floors that minimize the transmission of sound thereby to avoid annoying people in adjacent rooms. Soundproofing is particularly important in buildings adjacent to public transportation, such as highways, airports and railroad lines, as well as in theaters, home theaters, music practice rooms, recording studios and others. One measure of the severity of the problem is the widespread emergence of city building ordinances that specify a minimum Sound Transmission Class ("STC") rating. Another measure is the broad emergence of litigation between homeowners and builders over the issue of unacceptable noise. To the detriment of the U.S. economy, both problems have resulted in major builders refusing to build homes, condos and apartments in certain municipalities; and in widespread cancellation of liability insurance for builders.

Please replace the first paragraph under "Summary of the Invention" on page 2, line 22 which begins with "In accordance with this invention" with the following amended paragraph:

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In accordance with this invention a new laminated structure [[laminar]] and associated manufacturing process is provided which significantly improves the ability of a wall, ceiling, floor or door to reduce the transmission of sound from one room to an adjacent room, or from the exterior to the interior of a room, or from the interior to the exterior of a room.

Please replace the second paragraph under "Summary of the Invention" beginning on page 2, line 28 which begins "The material comprises. . ." with the following amended paragraph:

The material comprises a lamination of several different materials. In accordance with one embodiment, a [[laminar]] laminated substitute for drywall comprises a sandwich of two outer layers of selected thickness gypsum board which are glued each to an interior constraining layer, such as a metal, cellulose (e.g., wood) or petroleum-based product such as vinyl, composite plastic or rubber, using a sound absorbent adhesive. In one embodiment, the constraining layer comprises a selected thickness galvanized steel and the glue layer is a specially formulated [[QuietGlue]] "QuietGlue™" of a specific thickness which is a viscoelastic material. Formed on the interior surfaces of the two gypsum boards, the glue layers are each about 1/16 inch thick and the galvanized steel between .005 and .5 inch thick. In one instance, a 4 foot x 8 foot panel constructed using a 1/16" layer of glue and 30 gauge galvanized steel weighs approximately 108 pounds versus the weight of a typical drywall of the same thickness of about 75 pounds, has a total thickness of approximately 5/8 inches and has an STC of approximately 38. The double-sided standard construction using this particular material will give an STC of approximately 58. The result is a reduction in noise transmitted through the wall of approximately 60 db compared to a 30 db reduction of transmitted noise using standard commercially available drywall.

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Please replace the second full paragraph on page 3, line 21 which begins with "Another embodiment of this invention uses additional layers" with the following amended paragraph:

Another embodiment of this invention uses additional layers of material and is non-symmetric. Two external gypsum board layers have directly adjacent their faces layers of QuietGlue [[quiet glue]], followed by two metal layers, followed by two additional layers of glue, and then a central piece of laminated wood (in one embodiment a layer of laminated wood of the type used in plywood). The total finished thickness of this structure can vary, but the additional two layers of metal result in a significant increase in the attenuation of sound passing through the material.

Please replace the first paragraph on page 5, line 1 which begins with "FIG. 1 shows the laminar structure" with the following amended paragraph:

FIG. 1 shows the [[laminar]] laminated structure of one embodiment of this invention. In FIG. 1, the layers in the structure will be described from top to bottom with the structure oriented horizontally as shown. It should be understood, however, that the [[laminar]] laminated structure of this invention will be oriented vertically when placed on vertical walls and doors, as well as horizontally or even at an angle when placed on ceilings and floors. Therefore, the reference to top and bottom layers is to be understood to refer only to these layers as oriented in FIG. 1 and not in the context of the vertical use of this structure. In FIG. 1, the top layer 11 is made up of a standard gypsum material and in one embodiment is 1/4 inch thick. Of course, many other combinations and thicknesses can be used for any of the layers as desired. The thicknesses are limited only by the acoustical attenuation (i.e., STC rating) desired for the resulting [[laminar]] laminated structure and by the weight of the

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resulting structure which will limit the ability of workers to install the laminated structure [[laminar layer]] on walls, ceilings, floors and doors for its intended use.

Please replace the second full paragraph on page 5 which begins with "The gypsum board in top layer 11. . ." with the following amended paragraph:

The gypsum board in top layer 11 typically is fabricated using standard well-known techniques and thus the method for fabricating the gypsum board will not be described. Next, on the bottom of the gypsum board 11 is a layer of glue 12 called [["QGquiet glue™"]] QuietGlue. Glue 12, made of a unique viscoelastic polymer, has the property that the energy in the sound which strikes the glue, when constrained by surrounding layers, will be significantly absorbed by the glue thereby reducing the sound's amplitude across a broad frequency spectrum, and thus the energy of sound which will transmit through the resulting [[laminar]] laminated structure. Typically, this glue is made of the materials as set forth in TABLE 1, although other glues having the characteristics set forth directly below Table 1 can also be used in this invention.

Please replace the fourth paragraph on page 8, line 26 which begins with "FIG. 2 shows a second embodiment" with the following amended paragraph:

FIG. 2 shows a second embodiment of this invention. Two external layers 21 and 29 of gypsum board have coated on each of their interior faces a layer of QuietGlue 22 and 28, respectively, preferably made of a viscoelastic polymer, such as glue 12 in Fig. 1. Such a viscoelastic polymer has the ability to absorb sound energy through deformation of the viscoelastic material in response to the acoustic energy of the sound. On the interior faces of the QuietGlue are two sheet metal layers 23 and 27. Typically, these sheet metal layers 23 and 27 are each galvanized steel. In one embodiment, the galvanized steel is 30 gauge, .013

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inches thick, but other thicknesses of steel, as well as other metals, can also be used as desired. The interior faces of the steel layers 23 and 27 are coated with additional layers 24 and 26, respectively, of QuietGlue [[quiet glue]], again a viscoelastic material of the same type as glue layers 22 and 28. Then the core of the structure is made up of a pine [[laminar]] laminated sheet 25 which is of a type commonly used in plywood. In one embodiment, the pine [[laminar]] laminated sheet is 1/10th of an inch thick, but may also be MDF or other wood types.

Please replace the third paragraph on page 10, line 29 which begins with "Fig. 4 shows an additional embodiment" with the following amended paragraph:

Fig. 4 shows an additional embodiment of the soundproofing material of this invention. In this embodiment, two external layers 35 and 39 are 5/8 inch plywood and have on their interior faces layers 36 and 38 of QuietGlue [[quiet glue]], respectively. Between the QuietGlue is a layer of mass loaded vinyl 37. The structure shown in Fig. 4 is meant to be used on floors or in other construction areas where wood would normally be used. The plywood sheets 35 and 39 are each typically 5/8 inch thick in one embodiment. In this embodiment, the layers of QuietGlue 36 and 38 are each approximately 1/16 inch thick (although other thicknesses can be used if desired) and the mass loaded vinyl 37 is typically 1/16 to 1/4 inch thick. When the mass loaded vinyl is 1/8 inch thick, then the total thickness of the structure of Fig. 4 is approximately 1.5 inches thick. If the vinyl is 1/16 inch thick, then the total thickness is approximately 1.4 inches.

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Please replace the second paragraph on page 13, line 11 which begins with "Fig. 8 shows that the use of the wood. . ." with the following amended language to be placed at the end of the preceding paragraph:

[[Fig. 8 shows that the use of the wood structure in Fig. 4 on 2 x 4 studs alone, with no insulation, has an STC of 49, which is lower than the STC rating given to the structure of Fig. 3 in a similar configuration.]] It is known to those practicing in this field that a similar wall to the wall in Fig. 7 with standard plywood on both sides yields an STC rating of 29. Thus, [[this]] the wall of Fig. 7 represents a significant improvement over standard wood.

Please replace the third paragraph on page 13, line 18 which begins with "The use of the structure of Fig. 4" with the following amended paragraph:

The use of the structure of Fig. 4 on one side with no insulation with standard 2 x 4 construction results in an STC of 43, as shown in the graph of Fig. 8 [[9]]. This is a substantial improvement in sound attenuation over standard plywood, but not as good as use of standard 2 x 4 construction with the structure of Fig. 4 on both sides of the studs, as shown in Fig. 7 [[85]]. Finally, the use of the structure of Fig. 4 alone results in an STC of 36 as shown in Fig. 10, which is below the STC of 38 (Fig. 6) for the structure of Fig. 3 in a similar configuration.

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